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ST. AUGUSTINE CAMPUS
TRINIDAD & TOBAGO, WEST INDIES

COVID-19 VACCINES

Addressing Hesitancy and Uptake
in Trinidad and Tobago

A Report by the
UWI-St Augustine Committee
on COVID-19 Vaccine Hesitancy and Uptake

APRIL 2021



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UWI-St. Augustine Committee on COVID-19 Vaccine Hesitancy and Uptake
The University of The West Indies
St. Augustine Campus
Trinidad And Tobago
West Indies

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Foreword

The Faculty of Medical Sciences at St. Augustine is to be commended for establishing a Committee specifically to investigate vaccine hesitancy, a troubling phenomenon that has the potential to derail national COVID-19 vaccination programmes. The “UWI-St Augustine Committee on COVID-19 Vaccine Hesitancy and Uptake” has worked at speed to synthesize the international evidence base and establish forward looking mechanisms to monitor vaccine confidence in the population of Trinidad and Tobago. Anti-vaxx sentiment is a complex and multi-faceted public health threat: it ranges from sincere grassroots safety concerns to misinformation due to poor health literacy, to deliberate disinformation designed to cause harm. The recommendations in this report are intended to have an effect on the success of the vaccine programme in Trinidad and Tobago. By drafting this scientific report at such short notice, the UWI-St Augustine Committee on COVID-19 Vaccine Hesitancy and Uptake is embodying the public service ethos of UWI that is most keenly appreciated at times of national emergency. The report takes into consideration other academic outputs created by the UWI COVID-19 Task Force (www.uwi.edu/covid19) as a part of UWI’s remit to serve as a public academy for the Caribbean Region during a time of pandemic.

In the body of the Report, the most recent update from Heidi Larsen on the drivers of vaccine hesitancy was not included. This excellent paper identifies two critical important angles that need to be exploited to build vaccine confidence.

- A. Encourage knowledge seeking. The more people seek knowledge the more likely they are to gain vaccine confidence. This aspect is largely covered in the Report.
- B. Focus on educating doctors and nurses on the safety and efficacy of vaccination. Persons who access their information from doctors and nurses are significantly more likely to have vaccine confidence.

YET in the Caribbean there appears to be hesitancy among this key group of healthcare professionals. Although healthcare professionals in [Box 2](#) are mentioned as potential champions, I recommend that a more deliberate education campaign be targeted at this critical group. If our healthcare workers are not on board with the vaccine program, then our vaccine programme may never achieve herd immunity.

Professor Clive Landis

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[†]Figueiredo A de et al. Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study. The Lancet. 2020 Sep 26;396(10255):898–908.

Preface

Vaccine hesitancy is a world-wide phenomenon that threatens to derail not just the well thought through WHO (2011 to 2020) Global Vaccine Action Plan but now also the world-wide emergency vaccine response plans for COVID-19 prevention. Recognition of this challenge emerged during the first National Symposium on COVID-19 Vaccines here in Trinidad and Tobago in February 2021. Following this meeting and after discussions with the Ministry of Health, it was felt that a document that outlines precisely the challenges posed by vaccine hesitancy peculiar to Trinidad and Tobago and the Caribbean would be helpful in the implementation of the national vaccine policy for COVID-19.

The Faculty of Medical Sciences at the St Augustine Campus took the lead in organizing this work, but we were ably supported by our sister Faculty of Social Sciences. A look at vaccine hesitancy would of course involve the medical aspects of vaccines and being able to explain medical complications. However, understanding the sociological issues that profoundly impact the success of vaccination strategies and that are frequently overlooked, required experts from the field of social sciences. The reader will of course have the final say about the success of this collaboration, but we enjoyed the exercise. We believe that the output will become a valuable tool in vaccine policy implementation over the next one or two years and, perhaps, will allow for the evolution of more community-oriented vaccination strategies for disease prevention in the future.

We thank Professor Clive Landis, Pro Vice Chancellor and Chair, The UWI COVID-19 Task Force for supporting the preparation of this report and writing the Foreword. We also thank Professor Emerita Rhoda Reddock, Professor Godfrey Steele and Dr Douglas-Wade Brunton for their peer-review and insightful comments and suggestions. We thank the Centre for Medical Sciences Education, Faculty of Medical Sciences for the professional presentation of this report.

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Committee Membership and Terms of Reference

Membership

Name	Designation
Professor Terence Seemungal	Pulmonologist & Dean Faculty of Medical Sciences
Professor Donald Simeon (Chair)	Director and Professor of Biostatistics Caribbean Centre for Health Systems Research and Development Faculty of Medical Sciences
Dr. Cheryl-Ann Boodram	Lecturer, Social Work Behavioural Sciences, Faculty of Social Sciences
Dr. Christine Descartes	Lecturer, Psychology Behavioural Sciences, Faculty of Social Sciences
Dr. Jeffrey Edwards	Lecturer, Public Health and Coordinator, Master's in Public Health Programme Faculty of Medical Sciences
Dr Talia Esnard	Sociologist & Head, Department of Behavioural Sciences, Faculty of Social Sciences
Dr. Camille Huggins	Lecturer, Social Work Behavioural Sciences, Faculty of Social Sciences
Ms. Shelly-Ann Hunte	Research Fellow Caribbean Centre for Health Systems Research and Development, Faculty of Medical Sciences
Ms. Marsha Ivey	Lecturer, Public Health and Associate Dean Faculty of Medical Sciences
Dr. Sandra Reid	Psychiatrist and Deputy Dean, Clinical Sciences, Faculty of Medical Sciences

Terms of Reference

1. To identify and review the factors driving COVID-19 vaccine hesitancy in Trinidad and Tobago, including myths and misconceptions.
2. To prepare a strategy to address vaccine hesitancy and maximise uptake and equity.
3. To guide the communication of the facts about the vaccines, including their limitations, to the national community.

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Abbreviations

COVID-19	Coronavirus Disease
3Ws	Wash Your Hands, Wear Your Mask, Watch Your Distance
5G	Fifth Generation Technology
CARICOM	Caribbean Community
CDC	Centers for Disease Control and Prevention
COVAX	Covid-19 Vaccines Global Access
DNA	Deoxyribonucleic Acid
EPI	Expanded Programme on Immunization
FBM	Fogg Behaviour Model
GORTT	Government of The Republic of Trinidad and Tobago
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
M&E	Monitoring and Evaluation
MOH	Ministry of Health
NGO	Non-Governmental Organization
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SEM	Social Ecological Model
T&T	Trinidad and Tobago
TPB	Theory of Planned Behaviour
UAE	United Arab Emirates
UK	United Kingdom
USA	United States of America
WHO	World Health Organization

Key Messages

01

There is an urgent need to address vaccine hesitancy to prevent **prolonged transmission of COVID-19** in the population and stymie the introduction of **new variants** of the virus.

02

A flexible **pro-vaccination strategy** must be developed to address evolving **myths** and **misconceptions**; to reduce **barriers** to vaccine uptake; and to engender trust.

03

The **contextualization** of international COVID-19 vaccine uptake recommendations and guidelines is necessary to prepare a **tailored strategy** that can be effective in the local setting.

04

Strong **leadership**, a coordinated and systematic approach to **planning**, clear **communication goals** and **alliances** with trusted influencers and champions are essential for successful **implementation of the strategy**.

05

An **enabling environment** makes vaccines easy, quick, and accessible, thereby increasing vaccine acceptance and uptake.

06

Harnessing social influences from trusted champions, advocates, influencers, and social networks can promote favourable behaviour and improve vaccine uptake and equity.

07

Building trust in COVID-19 vaccines through ongoing community engagement and using a targeted approach for different groups in the population. It is important to **avoid stigmatization** and emphasize the **regular sharing of information** about the vaccines by trusted sources such as health professionals.

08

Qualitative and quantitative research should be conducted with diverse groups to fully understand the populations knowledge, attitudes, behaviours, and perceptions toward the COVID-19 vaccine.

Executive Summary

Following the first COVID-19 vaccine symposium in February 2021, the UWI convened a Committee on COVID-19 vaccine hesitancy at the St. Augustine Campus. The purpose of the Committee was to identify the factors driving COVID-19 vaccine hesitancy in Trinidad and Tobago and to prepare a strategy to address them to maximize uptake of the vaccine in the country. They were also tasked with providing guidance on communication on the facts about COVID-19 vaccines including limitations of their use.

The Ministry of Health, Trinidad and Tobago responded to the COVID-19 Pandemic with a multipronged approach to control the infection at the source, reduce or prevent transmission and protect the susceptible population. These measures, the so-called non-pharmaceutical interventions, have had significant social and economic impact on the population as whole and COVID-19 fatigue is now emerging both here and worldwide. To date no successful therapeutic strategy has emerged for COVID-19. However, several vaccines have been successfully trialed over the past year and this, fueled by the historic success of the World Health Organization's (WHO) Expanded Programme on Immunization (EPI), has led to optimism that we may be able to successfully control the spread of COVID-19 while relaxing partially some of the preventive measures used in the past year. Two factors present a challenge to this strategy: the emergence of variant strains of the virus and an anti-vaccine lobby. The latter has in part been fomented by the endless stream of myths, and misconceptions that have gained traction globally and locally. Given that there are challenges with the acquisition of vaccines by developing countries such as Trinidad and Tobago, it is important to not only urgently address any misinformation associated with vaccines but also to carefully delineate any limitations of COVID-19 vaccines based on scientific evidence.

This Committee, formed to advise on the issues of vaccine misinformation and strategies to overcome them, comprised experts in a range of disciplines including sociology, social work, psychology, medicine, and public health. The group agreed that the report must be evidence-based. However, given the short time available for preparation of this report (four weeks), it was not possible to conduct primary research. Desk research was therefore conducted to identify the data/evidence that was used in the preparation of this report. Additionally, due to the paucity of relevant local publications, informal and ad hoc approaches were used to obtain such information to complement published reports.

It was recognized that despite world-wide immunization successes such as the elimination of smallpox, vaccine hesitancy (defined as any delay, rejection, or refusal in the acceptance of vaccines despite their availability) remains an important issue. In the USA this is important in many minority groups where there are issues of trust in state authority. In the UK trust remains a major issue that is associated with systemic discrimination that unfolds in the forms of residential

segregation, under-representation of ethnic minorities within the health care system and (non) religious groups. In Trinidad and Tobago, concerns have been expressed about the speed at which the vaccines were developed and the possible side effects of the vaccines. There were also beliefs that healthy lifestyles, proper dieting, adequate exercise, and sustained sunlight could prevent acquisition of the virus that causes COVID-19. One belief was that the vaccines would be used as a form of control over the population. Some of these fears were based on established facts such as the temporary discontinuation of the AstraZeneca vaccine in a few European countries which had led to the pause in uptake of this vaccine. Others are not based on any facts but on misconceptions that the vaccine could cause COVID-19 or that it could prevent pregnancy or that with the vaccine would be ineffective in persons with COVID-19.

Conspiracy theories surrounding the emergence of COVID-19 have been widespread, so it is not surprising that they have surrounded the use of COVID-19 vaccines as well. Such theories include an alleged link between 5G (fifth generation) technology and vaccines and vaccine-induced infertility as a weapon to control the human population. The failure to address these conspiracy theories leads to reinforcement of vaccine hesitancy in a population.

The WHO has suggested that a good vaccine uptake strategy should include creating an enabling environment for vaccine delivery, harnessing social influence, and providing motivation through open and transparent dialogue. Successful implementation of these strategies must be guided by strong leadership, a coordinated and systematic approach to planning, and clear communication goals.

The Committee suggests that an enabling environment may be achieved through ensuring that selected vaccination sites are accessible to all subgroups, consideration of direct and indirect costs to the population of vaccination and making appointment bookings and making sites universally accessible. Harnessing of social influences may best be achieved by amplifying visibility of vaccination uptake using prominent public spaces; enabling ways for vaccinated persons to signify that they have received the vaccine on social media; building and sustaining coalitions of organizations and individuals (e.g., soca or chutney singers or NGOs or social media influencers) who can assist; encouraging the business sector to celebrate those vaccinated in visible ways; crafting tailored messages focusing on known motivators/influencers for specific population sub-groups and incorporating pro-vaccination content/messages in all communications. Special attention must be paid to key subgroups of the population including young adults, the elderly, migrant populations, the disabled, marginalized communities, and others.

In planning the communication strategy, we suggest that multiple information platforms be used, and misinformation be repeatedly addressed. Behaviour analysis surveys and community engagement sessions should be conducted with diverse groups to fully understand the population's knowledge, attitudes, behaviours, and perceptions toward vaccinations in general and the COVID-19 vaccine in particular.

Importantly, the Committee recommends a monitoring and evaluation framework to accompany vaccine roll-out. Indicators should include measures of vaccine hesitancy in the population over time, timely reports on progress toward achieving vaccine uptake targets, reasons for vaccine hesitancy and (quantitative and qualitative) reports of adverse outcome and accounts of recovery. At the very least, should the framework be properly implemented, it would leave Trinidad and Tobago in a better position when the next similar challenge arrives.

In addition to impact on mortality and morbidity, the COVID-19 pandemic has had a significant economic and social impact on the Trinidad and Tobago population. The rollout of vaccines is a critical tool in the management of this pandemic, especially since there is no effective treatment. However, its value would not be fully achieved unless the rates of vaccination are high enough to attain herd immunity. To have a high vaccine uptake in the country, there must be strong leadership, a coordinated and systematic approach to planning, clear communication goals and alliances with trusted influencers and champions.

We hope that the strategies presented in this document will help in attaining the necessary rates of vaccination.

1. Background

On March 11, 2020, the coronavirus virus 2019 (COVID-19) was declared a pandemic by the World Health Organization (WHO). Trinidad and Tobago (T&T) recorded its first COVID-19 case on March 12, 2020, closed its borders on March 22, 2020 and reported its first death on March 25, 2020.

The containment strategies put in place by the Government of the Republic of Trinidad and Tobago (GORTT) to mitigate the COVID-19 pandemic included measures to control the source of infection, to stop transmission routes and to protect the susceptible population. Specific interventions included isolation and treatment of confirmed cases; testing, contact tracing, and quarantine of their contacts; quarantine of persons who recently travelled to T&T from other countries; promotion of hand washing, social distancing, wearing a face mask in public; restricting large group gatherings; closure of the national border – exemptions required to enter/exit the country; and the creation of a parallel health care system to manage cases of COVID-19 (so as not to overwhelm the traditional health care system).

The pandemic has had a devastating social and economic impact due to the containment measures that restricted access to workplaces, schools, places of worship, restaurants and bars, shopping malls, cinemas, gyms and retail stores. Although there has been some scaling down of some of the measures, groups in the population continue to experience negative psychological effects and “COVID-19 fatigue”. The latter includes demotivation to adhere with recommended protective behaviours accompanied by varying levels of complacency, hopelessness, and alienation¹⁻³.

Immunization is one of the most cost-effective and successful interventions that has resulted in improved health outcomes and reduced morbidity and mortality from infectious diseases of public health importance. It is particularly important for diseases for which there is no effective treatment such as COVID-19. However, success is dependent on high uptake rates to attain herd or population immunity i.e., when the number of persons with immunity is large enough to make disease spread from person to person unlikely. Vaccination rates to achieve the latter are not known but are estimated to be between 70 to 80%. COVID-19 vaccination uptake strategies require plans that: (a) address vaccine roll-out in the different population sub-groups, including consensus about the order in which persons will get access to the vaccine and (b) reduce vaccine hesitancy and resistance and create demand for vaccines^{4,5} which though not mandatory, are highly recommended.

New variants occur over time as viruses constantly mutate. The United Kingdom (B.1.1.7) and the South Africa (B.1.351) variants appear to be about 50% more contagious than the older versions of the virus and have resulted in major COVID-19 surges. Another variant of concern emerged in Brazil and Japan (P1). People who have previously had COVID-19 may become re-infected by the new strains and the effectiveness of the current vaccines against these new variants is unclear⁶.

The WHO's Expanded Programme on Immunization (EPI) has been very successful in T&T, where evidence of immunization against childhood diseases is a requirement for enrolment in schools. The immunization programme for older children and adults has been less successful and despite national policies, the uptake of the influenza vaccine and the human papillomavirus (HPV) vaccine has been low⁷. The uptake of vaccines in a general adult population has always been stymied by anti-vaccination messages, which have often been more effective at capturing popular attention than the scientific facts of public health messages⁸.

With the development and approval of COVID-19 vaccines, there was a renewed push by the anti-vaccination movement. There has been an endless stream of myths, and misconceptions that have gained traction globally and locally. Even though there are challenges with the acquisition of vaccines by developing countries such as T&T, it is important to urgently address the misinformation. The situation is particularly urgent with the new waves of COVID-19 infections and deaths in many countries, even as the roll out of vaccines has begun globally.

The GORTT received its first batch of vaccines (2,000 doses of AstraZeneca) as a gift from the Government of Barbados on February 17, 2021. It has since received a shipment from the COVAX Facility on March 30, 2021 (33 600 doses of AstraZeneca) with plans to get additional supplies from the African Union/African Medicines Council; the Caribbean Community (CARICOM) Initiative with India; and through direct bilateral discussion with vaccine manufacturers. The vaccine roll-out programme started on February 16 when high risk/high exposed health care workers and other frontline public health care workers were targeted. The next group to be vaccinated included persons 60 years of age and older with chronic illnesses. The roll-out schedule for other groups was published.

This report provides a rapid assessment of vaccine hesitancy in T&T. It also proposes strategies to increase vaccine uptake and achieve herd immunity with a resultant decrease in morbidity and mortality from COVID-19 and its complications. It was noted that it was unlikely that the country would achieve herd immunity before 2022 so the strategies must include innovative interventions and more sensitization programmes over a protracted period.

2. Methodology

The multi-disciplinary Committee on COVID-19 Vaccine Hesitancy and Uptake in T&T comprised experts in a range of disciplines including sociology, social work, psychology, medicine, and public health. They agreed that the report must be evidence-based. However, given the short time available for its preparation (four weeks), it was not possible to conduct primary research. The latter requires approval from Research Ethics Committees, which usually takes at least one month. Desk research was therefore conducted to identify the data/evidence that was used in the preparation of the report. Additionally, due to the paucity of relevant local publications, informal and ad hoc approaches were used to obtain such information to complement published reports.

The Committee members shared knowledge and opinions on local perceptions about the COVID-19 vaccine. Opinions were based on informal individual and group discussions with adults in the general population, youth, migrants, and HIV patients. In these discussions, questions centered on persons' knowledge of and (non)willingness to take the vaccine, general beliefs, concerns, as well as knowledge/information on the virus, and access to the vaccine. The experts also captured local attitudes and beliefs through social media and traditional media outlets, including radio talk shows. Using these various sources, local vaccine myths, misconceptions and misinformation were identified. To ensure clarity on these terms, definitions and clarifications of key concepts including myths and misconceptions as well as vaccine hesitancy and herd immunity were prepared. These are presented in [Appendix 1](#).

Various strategies were used to gather related data including the search of institutional databases and public spaces for published and unpublished reports. Relevant data identified through this process were reviewed, analysed and synthesized by small working groups within the Committee; each group focused on a different section of the report. As an example, for the section on the myths and misconceptions, the group met to discuss the reporting strategy. They agreed on their approach towards a review of empirical literature from institutional online databases. They then identified key themes/areas and agreed on the definition of key constructs.

The various sections were collated to prepare the first draft of the report, which was reviewed to ensure that there were no overlaps and that all the Terms of Reference were adequately addressed. Emphasis was also placed on ensuring that the report was succinct and reader friendly. A 1-3-25 reporting format was used i.e., a 1-page summary of the key messages, a 3-page executive summary and a 25-page full report of the findings.

3. COVID-19 Vaccine Hesitancy – Myths and Misconceptions

3.1 Vaccine Hesitancy

Though vaccines have been successfully used to combat infectious diseases; vaccine hesitancy has emerged as an increasing concern in recent decades. It has been significant in some populations and has even led parents to decline vaccines for their children, resulting in dire public health consequences⁸. Vaccine hesitancy can be defined as any delay, rejection, or refusal in the acceptance of vaccines despite their availability. In many studies, researchers recognize the significance of social and contextual factors (such as the racial, ethnic, gendered, and class backgrounds of persons) and the effects of these on the misconceptions and myths that affect vaccine uptake^{9,10}.

International reports have shown that vaccine hesitancy is related to audience segmentation by population subgroups^{11,12}. Certain subgroups tend to be more hesitant about the vaccine and attitudes may vary. These groups include “females, Black adults, and those with an eligible health condition” in the US¹³. One of the key issues affecting vaccine hesitancy in the United States of America (USA) is the lack of trust from minoritized groups, example African Americans, who continue to bear feelings of betrayal and mistrust of medical authorities and of the government based on a history of unethical medical research practices that affected their families, such as the Tuskegee syphilis experiment. The influence of conservative political and religious groups who reject State influences on the lives of citizens, and the spread of these narratives using social media have also added to the growing levels of vaccine hesitancy in the USA. Concerns are also raised by groups defined by their income, gender, maternal status, employment type, political affiliation, and geographic location. For example, there are concerns with the vulnerability of persons in rural communities related to issues of access and vaccine hesitancy^{9,10}. Similar concerns unfold for vulnerable groups within the UK. Here trust remains a major issue that is associated with systemic discrimination that unfolds in the forms of residential segregation, under-representation of ethnic minorities within the health care system¹⁴. Concerns here are also for how issues of ethnicity intersect with socioeconomic status (as measured by income and educational levels), and how these interactions intensify the vulnerabilities of those groups and increase vaccine hesitancy^{15,16}. These concerns raise many questions related to reaching those who are at risk, and the need for more inclusive strategies.

In the Caribbean, immunization is listed as one of the most successful public health interventions, with high vaccination of children at public health facilities^{17,18}. Yet, the misconceptions and myths related to the safety and effectiveness of the influenza vaccine have affected vaccine uptake. In some cases, such pessimism or hesitancy around the influenza vaccine emanated from myths that were carried over from previous vaccine regimes such as measles, mumps, and rubella. Additionally, the lack of information on certain health conditions and political will to reverse these challenges, affect vaccine uptake¹⁹. A qualitative study, conducted in T&T, on the barriers and facilitators to the uptake of the HPV vaccine among mothers of adolescent girls found no

widespread strategies in place to educate the population about the vaccine²⁰. The barriers to vaccine uptake were related to a lack of information on the safety and efficacy of HPV vaccines and most parents were unaware that the HPV caused cervical cancer¹⁹. In addition, the HPV vaccine roll-out plan was fraught with missteps including lack of consultation with key stakeholders, the HPV virus strains not covered by the vaccine, the period for which the vaccine may be effective, contraindications to vaccine use and the side effect profile of the vaccine.

A key challenge in dealing with vaccine uptake is the lack of empirical research for the Caribbean. This is particularly the case for data on vaccine hesitancy by gender, age, educational levels, ethnicity, religious communities, and (urban/rural) geographies. These variables impact what persons know about their own health and how they respond through preventive methods, including the acceptance of vaccines. In the case of T&T, the specific realities and susceptibilities of persons with low socio-economic status, mothers, elderly persons, those within rural communities, migrant populations (e.g., from Venezuela), as well as young persons must also be considered.

3.2 Vaccines Myths and Misconceptions – Results of Informal Discussions

While there was limited time to conduct primary research, Committee members held informal discussions with willing participants from Trinidad and Tobago. In one discussion with young persons (15-17 years), participants voiced some scepticism related to the speed at which the vaccines were developed and the possible side effects of the vaccines. There were also beliefs that healthy lifestyles, proper dieting, adequate exercise, and sustained sunlight can avert the virus. One belief was that the vaccines would be used as a form of control over the population. For older persons (25-40 years), the main concern was that of the type and effectiveness of the vaccine, with less trust levels for the AstraZeneca vaccine, particularly given the growing global fears and concerns. Two related issues affecting vaccine hesitancy were the limited levels of COVID-19 testing available and knowledge of the side effects. These reported levels of hesitancy were deeply connected to the limited knowledge/sensitization related to the vaccine, the conduct of clinical trials, and the number of doses required for effectiveness. Even with this age group, Committee members noted the sense of invincibility as it relates to the virus.

In another conversation with human immunodeficiency virus (HIV) patients aged 29-65 years who had pre-existing co-morbidities (e.g., cancer, hypertension, diabetes, etc.), participants spoke to mixed reports of the side effects of the vaccine and the spread of misinformation from both mainstream and social media. Reasons for vaccine hesitancy for this group, were the fear of the vaccine for persons living with HIV and concern for the vulnerability of non-white groups who have historically been used in clinical trials. Related concerns were for the many reported stories/conspiracy theories, the quick development and long-term side effects of the vaccine, particularly that of the AstraZeneca vaccine, where there were reported cases of blood clots and, in a few European countries, the pausing of vaccine rollout. These fears and reported side effects had influenced a preference for Pfizer and Moderna vaccines, and a desire to see the outcome

for persons who had taken the vaccine (e.g., Frontline health care workers, Minister of Health, other politicians, and other persons with HIV). To address these concerns, these participants called for greater public education and/or sensitization campaigns that clarify who needed to be vaccinated, the procedures for doing so, and the possible side effects.

At a broader level, trusted international organizations, (e.g., John Hopkins University, WHO, the Mayo Clinic, and the Centers for Disease Control and Prevention (CDC) have also treated with the many myths related to COVID-19 virus and available vaccines ²¹⁻²³; the MOH also has a webpage with myths and myth-busters. We have captured some of the common myths (Table 1) and misconceptions (Table 2) and presented the relevant facts.

Table 1: Myths and Facts Related to COVID-19 and the Vaccines

The myths presented below highlight some of the traditional stories about COVID-19 that influence behaviours related to vaccine uptake (see definition of a myth in Appendix 1).	
Myth: Sunlight and high temperatures kill germs so they can kill COVID-19.	
Fact: Sunlight and high temperature will not prevent COVID-19 infection once it is in the human body.	
Myth: Drinking alcohol will kill germs and protect one from COVID-19.	
Fact: Drinking alcohol does not protect you from COVID-19.	
Myth: Eating garlic prevents you from getting COVID-19.	
Fact: Garlic is a healthy food that may have some antimicrobial properties. However, there is no evidence from the current outbreak that eating garlic has protected people from COVID-19.	
Myth: Hot pepper in your food will cure COVID-19.	
Fact: Adding pepper to meals will not cure COVID-19.	
Myth: Vitamins/supplements can boost my immune system so will prevent COVID-19.	
Fact: There is much discussion on whether vitamins, minerals, supplements and specific foods can protect the immune system from viruses. The research is not conclusive.	
Myth: Disinfectant or bleach can kill 99% of viruses including COVID-19.	
Fact: Disinfectant or bleach kills 99% of viruses (including COVID-19) but ONLY on hard surfaces. It remains a poisonous substance that should not be ingested.	
Myth: Drinking a lot of water as well as gargling warm water with salt or vinegar can eliminate sore throats and coughing caused by the virus.	
Fact: While it is true that coronaviruses can cause a sore throat and gargling with warm water may make it feel better, it will not stop an infection with COVID-19 or any other virus.	

Table 2: Misconceptions and Facts Related to COVID-19 and the Vaccines

Many misconceptions related to the COVID-19 vaccine are due to a lack of information or research (see definition of a misconception in [Appendix 1](#)).

Misconception: The vaccine will give me COVID-19.

Fact: Vaccines prime your immune system to recognize and fight off a disease, but they don't actually cause an infection.

Misconception: It is not safe for me to get a COVID-19 vaccine if I would like to have a baby one day.

Fact: There is currently no evidence that COVID-19 vaccination causes any problems with pregnancy, including the development of the placenta. In addition, there is no evidence that fertility problems are a side effect of any vaccine, including COVID-19 vaccines. Like all vaccines, scientists are studying COVID-19 vaccines carefully for side effects now and will continue to study them for many years.

Misconception: I already had COVID-19, so I won't benefit from the vaccine.

Fact: We don't yet know how long natural immunity to COVID-19 last. Right now, it seems that getting COVID-19 more than once is not common, but there are still many questions that remain unanswered. Experts say that, even if you've had COVID-19.

Misconception: The COVID-19 vaccine is not safe because it was rapidly developed and tested.

Fact: The length of time for vaccine development was accelerated given the urgency of addressing the pandemic. In the USA, an 'Operation Warp Speed' framework was utilized which was a collaboration between the pharmaceutical industry and the government to ensure the urgent testing, quicker approvals, and more cost-effective production of the vaccine²³. Through this process, four companies (Pfizer, AstraZeneca/Oxford of Serum Institute of India and SKBio, Moderna, Johnson & Johnson) had successfully completed clinical trials, with the observation of strict ethical protocols. Other vaccines are still in the clinical trial pipeline and expected to be released soon.

Misconception: If you recover from a previous COVID-19 infection then you do not need the vaccine.

Fact: There is not enough information available to support the view that there is 100% natural immunity once infected with COVID-19. Therefore, it is recommended that one takes the vaccine.

Misconception: There are severe side effects of COVID-19 vaccines.

Fact: Reported side effects of COVID-19 vaccines have mostly been mild to moderate and have lasted no longer than a few days. Typical side effects include pain at the injection site, fever, fatigue, headache, muscle pain and chills. These side effects are consistent with those experienced with other vaccines.

Misconception: Since COVID-19 survival rate is so high, I don't need a vaccine.

Facts: It is true that most people who get COVID-19 can recover. But it is also true that some people develop severe complications. So far, more than 1.7 million people around the world have died from COVID-19 – and that doesn't account for people who survived but needed to be hospitalized. Because the disease can damage the lungs, heart and brain, it may also cause long-term health problems that experts are still working to understand.

We acknowledge that myths and misconceptions play into conspiracy theories, the spread of misinformation (particularly via social media), and perceptions of vaccine diplomacy. These beliefs also question the trustworthiness of governments and pharmaceutical companies across the globe. We address these issues in the following sub-sections.

3.3 Conspiracy Theories

The COVID-19 pandemic has been associated with widespread conspiracy theories from its inception. Many of these beliefs revolve around suspicions related to the virus being man-made or intentionally developed as a biological weapon²⁴. Conspiracy beliefs have now been extended to include misinformation about the link between 5G technology and that of the hidden agenda behind the virus²⁵. One example is that of the connection between 5G technology and the vaccine. Another example is that the COVID-19 vaccine will change your deoxyribonucleic acid (DNA). There are additional claims that COVID-19 vaccines could lead to infertility, consequently limiting the growth of the human population¹². Where these conspiracies are unaddressed or not challenged, then they can reinforce existing fears or hesitancy around vaccinations¹⁵, reduce compliance²⁶ and promote mistrusts of governments, pharmaceutical companies, and health care professionals²⁷.

3.4 Social Media and Misinformation

Social media platforms are considered a double-edged sword, capable of both communicating misinformation and refuting it. Misinformation is false information deliberately intended to deceive and is usually propagated via non-traditional/social media. We see, for instance, that with growing access to the internet, reliance on social media sources such as YouTube, Facebook, Twitter and TikTok has challenged information management within the context of this pandemic^{28,29}. This reliance heightened under the COVID-19 lockdown and enhanced the spread of misinformation, via social media. Unfortunately, these narratives have successfully influenced the perceptions, intentions, and behaviours of many. Given that social media are so ubiquitous, anti-vaccine messages have rapidly undermined public health initiatives across the globe where social media controversies have influenced vaccine intent and uptake. Brief exposure to misinformation can become embedded and consolidated in long-term memory³⁰, so it is important to conduct research on emerging trends related to COVID-19 narratives via social media and to reframe them.

3.5 Global Distribution and Inequity

The politics around the geographies of the vaccine and vaccine diplomacy are also major points to be considered within the examination of vaccine hesitancy³¹. Manufacturing and distribution of vaccines have become an effective tool for diplomacy. There is strong determination for countries to use their manufacturing capacity to extend support and access to neighbouring countries and this is perceived as a strategy to strengthen alliances and bilateral relations. We note that the scientific race to produce a vaccine was at the forefront of Developed Nations, which are perceived to be capitalizing on the opportunity to monopolize their power and prioritizing their countries during this pandemic. One concern is for the apparent preservation and prioritization of Pfizer and Moderna vaccines for countries in the Global North. The current challenge is that even if most countries achieve herd immunity, nations with limited access to the vaccines, are outdistanced in their pursuit for vaccination. The call is for greater access and equity in the distribution to countries within the Global South and for increased production of vaccines to meet global demands³¹. This remains an ongoing challenge.

4. Key Strategies for Maximizing Equity and Uptake of the COVID-19 Vaccine

As of 15th April 2021, the [WHO \(COVID-19\) Dashboard](#)³² indicated that 751,452,536 vaccine doses had been administered worldwide. Countries leading the way in the COVID-19 vaccination efforts (% of population vaccinated) include Gibraltar, Israel, United Arab Emirates (UAE), Chile, USA, and Serbia^{32,33}. Best practices from three successful vaccine campaigns are presented in [Appendix 2](#). Some of the approaches employed in these campaigns can be applied to the T&T context to achieve increased rates of vaccine uptake and to guide communication strategies.

4.1 Key Strategies for Effective Vaccine Uptake in T&T

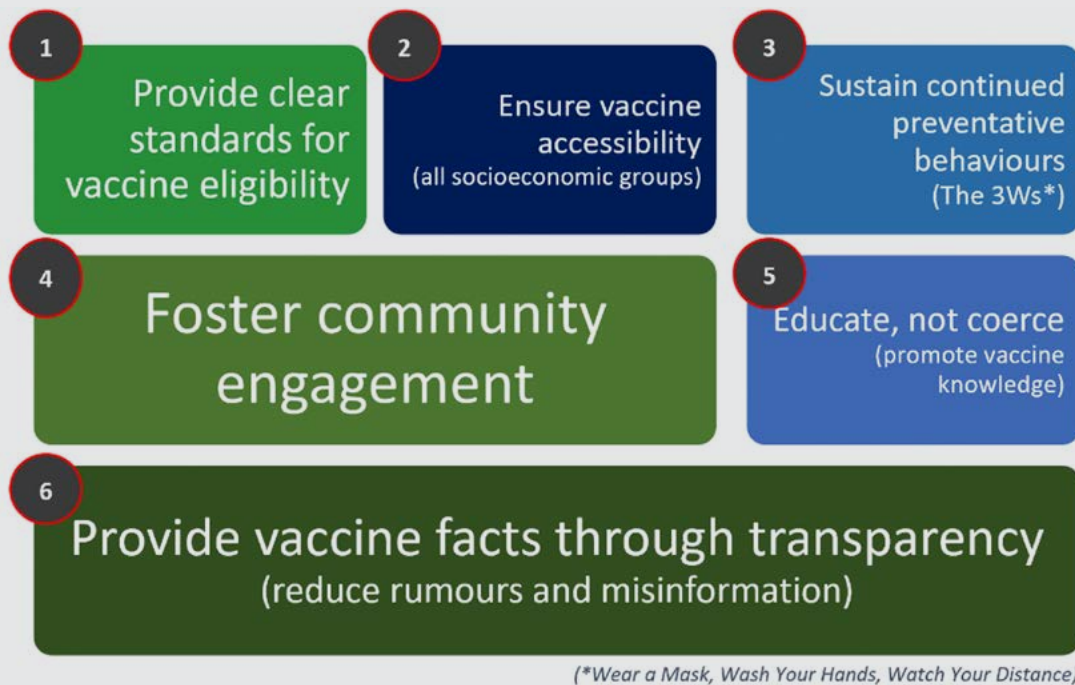
The WHO recommends that countries develop a pro-vaccination strategy that can maximize vaccine uptake when they become available. This section is informed by two relevant guidance documents (Figure 1) that delineates evidence-informed guidelines/strategies that can be used to maximize equity and uptake of COVID-19 vaccines^{4,8}.

Figure 1. Pro-Vaccination Guidance Documents on Strategies for Vaccine Uptake



The strategies and guidelines identified in these documents align with a combination of theoretical approaches to vaccine uptake (See [Appendix 3](#)). These were mapped to generate contextualized

Figure 2. Overarching Communication Goals for Vaccine Uptake



strategies that can be effective in the local setting (see Boxes 1-3). Tailored communication and uptake strategies to create an enabling environment are presented in Box 1; to harness social influences in Box 2, and for motivation in Box 3.

Successful implementation of these strategies must be guided by strong leadership, a coordinated and systematic approach to planning, clear communication goals (Figure 2) and alliances with trusted influencers and champions. Trusted influencers or champions must understand the facts, myths, and misconceptions about the vaccine that is aligned with the GORTT's vaccine effort. This is particularly important as myths related to the COVID-19 virus and the vaccine are both deeply embedded in cultural practices and are more difficult to address. It is important that strategies designed to address these myths take into consideration the cultural facets of these beliefs and practices and that messages be built in tandem with cultural and community groups to effect behaviour change over time. Developing culturally relevant strategies for changing these myths should be guided by research and open dialogue with community groups. A central aspect of that change process must include an understanding of the cultural beliefs that serve as part of critical knowledge systems/cultural assets affecting communal practice. Taking an asset-based perspective allows for collaborative engagement, where health professionals, researchers, State officials, and community-based organizations can work through these beliefs, including concerns for the potential side effects of the vaccines to identify strategies to protect their health and safety.

BOX 1

Vaccine Uptake Driver #1: CREATING AN ENABLING ENVIRONMENT

Making vaccination easy, quick, and accessible.

TAILORED COMMUNICATION AND UPTAKE STRATEGIES:

- ◆ Ensure that the selected vaccination sites/locations are accessible to all sub-groups in the population (e.g., the elderly, persons with disability, etc).
 - ◇ All sites must comply with Ministry of Health COVID-19 Safety Guidelines: physical distancing, hand washing/sanitizing, wearing masks, temperature checks, etc.
- ◆ Consider direct/indirect cost (monetary/non-monetary) to the population when planning/scheduling vaccination e.g., travel, loss of wages, childcare, etc.
 - ◇ If possible, provide support services for specific population sub-groups e.g., mobile vaccination unit, public transport services to vaccination site, staggered hours.
- ◆ Make appointment bookings and access to sites easy for all population sub-groups e.g., online bookings, call centres, appointments via family physicians, walk-in appointments.
- ◆ Train health care workers/staff to deliver high-quality service at the vaccination sites.
- ◆ Develop content that foster an enabling environment such as:
 - ◇ The process for booking appointments/accessing vaccination sites.
 - ◇ The vaccination campaign's default position – preferably aim to 'vaccinate all' with an 'opt out' option.
 - ◇ The activities for which COVID-19 vaccination may become mandatory e.g., school, travel, working in health care, etc.
 - ◇ The schedules and timetables for total population vaccination before vaccination roll out begins so that everyone understands when/where they will get access.
 - ◇ Ensure that a clear eligibility and rollout plan is clearly communicated in advance (e.g., clearly distinguish categories of "essential workers" or if there is a hierarchy for those with "comorbidities").
- ◆ Ensure there are continued COVID-19 prevention measures (3Ws: Wash Your Hands, Wear Your Mask, Watch Your Distance)
- ◆ Develop toolkits with a range of key messages for online posters, printed posters, radio, tv, social media, and other materials which provide non-technical immunization information.

EXAMPLES OF SUPPORTING GOVERNMENT MINISTRIES

(multisector collaboration to facilitate Health in All policies)

Ministries of Education; Finance; National Security; Public Administration; Social Development, etc

BOX 2

Vaccine Uptake Driver #2: HARNESSING SOCIAL INFLUENCES

Working with trusted members of communities.

TAILORED COMMUNICATION AND UPTAKE STRATEGIES:

- ◆ Utilize health workers, the most credible source of medical information, to regularly communicate the facts about the vaccines.
- ◆ Amplify the visibility of vaccination uptake by including the use of prominent public spaces e.g., Health Centres, Schools, Promenades (mobile units), Transportation Hubs, Sporting Complexes, Places of Worship, etc.
- ◆ Enable ways for vaccinated persons to signify that they have received the vaccine on social media, news media or on-person e.g., 'I GOT MY COVID-19 VACCINE'- buttons, ribbons, stickers, selfie stations; place special emphasis on influencers interacting with vaccine hesitant groups and include leaders that have taken the vaccine or will demonstrate taking the vaccine in the community setting.
- ◆ Build and sustain coalitions of organizations and individuals who can assist through the provision of resources, expertise, credibility, and access e.g., academia, private sector, NGOs and CSOs.
- ◆ Encourage business sector to celebrate those vaccinated in visible ways e.g., giveaways, promotions etc.
- ◆ Identify and engage trusted 'role models', influencers, champions and members of the communities to get involved and endorse vaccination drives.
- ◆ Assign dedicated staff or resource personnel to:
 - ◇ support pro-vaccine influencers, advocates, and social networks.
 - ◇ develop and support continuous positive story streams, nurturing multiple supportive voices, and amplification of pro-vaccination grassroots advocates.
 - ◇ identify and respond to false social media posts to prevent the decline of trust in public health authorities. Constant monitoring of social media is required.
- ◆ Utilize health care professionals and prominent personalities (sensitised) as 'Champions' for the vaccination campaign.
- ◆ Craft tailored messages focusing on known motivators/influencers for specific population sub-groups as opposed to a 'one size fits all' approach; different strategies required for myths compared to misconceptions.
- ◆ Develop general and targeted social media content.
- ◆ Incorporate pro-vaccination content/messages in the current strategy for working with local media houses.

CHAMPIONS/ INFLUENCERS:

Health Care Workers, Entertainers such as soca / chutney / gospel artistes, sport icons, religious leaders, traditional media / TV/ radio personalities, community activists/advocates, academia, NGOs/CSO, social club organisations (Rotary/Lions Clubs), small and medium enterprise business owners, social media influencers, etc.

BOX 3

Vaccine Uptake Driver #3: MOTIVATION

Open and transparent dialogue and communication about uncertainty, risks, including safety and benefits of vaccination.

TAILORED COMMUNICATION AND UPTAKE STRATEGIES:

- ◆ Use targeted approach for different subsets of the population, clearly identifying and focusing on groups that can be described as: *'The hesitant', 'The unconcerned', 'The poorly reached' and 'The active resisters'*.
 - ◇ Contextualised evidence-based information (quantitative and qualitative) is required to provide insight about perceptions, attitudes, beliefs, wants, and behaviours and to inform interventions for these groups.
 - ◇ In all cases, avoid stigmatization of individuals who display vaccine hesitancy.
- ◆ Build trust in COVID-19 vaccines through ongoing community engagement and trust-building programmes.
 - ◇ Programmes should be focused on confidence-building and active hesitancy prevention and should communicate uncertainty, risks, and vaccine availability.
 - ◇ Conduct workshops with community leaders/volunteers on how to deliver the correct information and reduce misinformation.
 - ◇ Develop communication messages in collaboration with influencers; be aware of difference in approach when targeting a myth vs a misconception.
- ◆ Ensure transparency regarding vaccine licensing, manufacture, expiration and prioritization planning.
- ◆ Highlight 'social benefits' that can result from population immunity, including the removal of COVID-19 restrictions, if the level of uptake is high:
 - ◇ Decrease in morbidity and mortality due to COVID-19.
 - ◇ Rehiring of personnel previously employed in industries that have been closed or partially opened: entertainment, tourism, large sporting events, Carnival 2021/2
 - ◇ Reopening of borders and full resumption of air travel.
 - ◇ Reduction in Government spending on COVID-19 treatment and control.

KEY POPULATIONS:

Young adults (18-25), elderly (over 64 years), migrant populations, persons with disabilities, remote communities, religious groups, persons with multiple comorbidities, marginalised communities, etc.

4.2 Communication Guide

A systematic and evidence-based approach should be applied when implementing the proposed multipronged communication strategy. This approach should take into consideration the context and challenges for T&T, the communication goals, target audiences and influencers to be used in the process.

It is important to note that in the development of activities related to the vaccine communications strategy, the long-term sensitization of the population should be considered. The negative impact that vaccine hesitancy can have on routine immunization programmes should not be overlooked.

Behaviour analysis surveys and community engagement sessions should be conducted with diverse groups to fully understand the populations knowledge, attitudes, behaviours, and perceptions toward vaccinations in general and the COVID-19 vaccine in particular. As evidence-based strategies are built to counter different beliefs (myths/misconceptions), it is imperative the dissemination methods be “supported by other complementary actions such as community empowerment, policies and participation of various players including communities, civil society groups and the private sector among others”³⁴. The interconnected nature of the issues across population groups should inform any strategy (Figure 3). The results of these engagements will allow for an evidence informed communication strategy.

Figure 3. Interconnected Challenges Underlying Communication Strategy



Although some key communication and uptake strategies have been highlighted, it is important to have an adaptable quick guide or checklist to steer the process. A checklist for vaccine communications provides a good system that documents the implementation process. Below is a suggested checklist with broad areas to consider as outlined by WHO³⁵:

1. Plan and prepare prior to vaccine introduction.
2. Set up lines of communication.
3. Identify potential threats to confidence in COVID-19 vaccine safety.
4. Listen proactively.
5. Introduce a hotline to address concerns related to COVID-19 vaccines.
6. Communicate in ways that build understanding and trust.
7. Construct messages about COVID-19 vaccine safety using an evidence-based approach.
8. Pre-test messages with representatives of target audiences and adjust as needed.
9. Work closely with the media.
10. Build a social media presence.
11. Careful management of negative messages.
12. Criteria for prioritizing responses to vaccine safety issues.

Also, see [Appendix 4](#) for an example of a quick guide for vaccination communications³⁶.

5. Monitoring and Evaluation

This report was prepared to support the efforts of the MOH to achieve high rates of COVID-19 vaccines uptake thus enabling the country to achieve population immunity. Strategies to address vaccines hesitancy and increase uptake were proposed, which should be considered by the MOH as it continuously updates its Vaccine Rollout/Implementation Plan. The goal and objectives of the latter will serve as the basis for development of a comprehensive Monitoring and Evaluation (M&E) Framework. An example of a Goal could be “offering vaccination to all residents of TT to achieve herd immunity and protection for the population against the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus which causes COVID-19.”

The Objectives emanating from the Goal can then serve as the basis for the development of monitoring indicators and reporting approaches. Importantly, the timeline to achieve herd immunity is likely to last more than 12 months from the start of vaccination. During this time, the rollout of activities should be monitored, and the impact of the strategies evaluated so that the results could be used to inform programme implementation.

Some examples of indicators that have been applied to past vaccination campaigns which focused on vaccine hesitancy include:

- ◆ Level of vaccine hesitancy in the population (which changes over time)
- ◆ Disaggregated data on vaccine hesitancy by gender, age, educational level, geographic regions, etc.
- ◆ Progress toward achieving vaccine acceptance targets (disaggregated by sub-populations)
- ◆ Reasons for vaccine hesitancy
- ◆ Actions to promote and sustain demand for vaccines and vaccination services
- ◆ Reports of adverse events and accounts of their recovery – quantitative as well as qualitative measures.

These indicators can be considered when the M&E framework is developed. However, we note the lack of data (at a specific level) on the factors affecting vaccine hesitancy as well as (at a broader level) the factors that affect access to health care for diverse groups within our population. There is no doubt that this lack of empirical research/data affects the extent to which we can design and implement evidence based public policies to address health crises such as this pandemic. It is important therefore to conduct research to provide deeper insights on some of the vulnerabilities and hesitancies for diverse groups within the population and to design interventions that directly cater to these. The findings of such research are critical and will facilitate the timely monitoring and evaluation of the strategies implemented, including those that target specific groups.

6. Limitations

Understanding vaccine hesitancy is necessary to inform interventions that promote uptake of the COVID-19 vaccine, but there were very few Caribbean studies that examined the factors associated with hesitancy. Budgetary and time constraints did not allow the Committee to conduct primary research towards a formal, in-depth exploration of the attitudes to, perceptions of, and health behaviours related to vaccine hesitancy in T&T. The consequent dependence on desk research resulted in an inability to obtain a thorough understanding of the various contextual and socio-cultural influences that may lead to vaccine hesitancy, especially in relevant sub-communities.

The intervention strategies recommended to promote vaccine uptake and reduce hesitancy are based on best practice globally, adapted for local implementation, and are not always informed by the local context or pilot tested for effectiveness. The identification of culturally specific myths and misconceptions would further assist in planning targeted interventions to overcome barriers and improve vaccine coverage. The collection of primary data to inform such interventions.

7. Conclusion

In addition to impact on mortality and morbidity, the COVID-19 pandemic has had a significant economic and social impact on the Trinidad and Tobago population. The rollout of vaccines is a critical tool in the management of pandemic, especially since there is no effective treatment. However, its value would not be fully achieved unless the rates of vaccination are high enough to attain herd immunity. This is expected to be a challenge as although the country's vaccination uptake rates are high in pre-schoolers, the country has had a poor track record in adults (flu) and older children (HPV). It is therefore important to address the various myths and misconceptions that drive vaccine hesitancy.

The Committee comprising medical and social sciences experts synthesized the available evidence and identified some of the principal myths and conspiracy theories as well as the misconceptions and misinformation related to COVID-19. To address these, tailored communication and uptake strategies are proposed that avoid stigmatization. Instead, they focus on creating an enabling environment for vaccine uptake, harnessing social influences, increasing the level of motivation, making the necessary distinction between myths and misconceptions, and providing timely and credible information about the vaccines. It must be noted however, that although the strategies are based on international best practice, they can be strengthened by local data/empirical research. A monitoring and evaluation (M&E) framework comprising indicators linked to the objectives of the strategies and their implementation must be developed. This would facilitate the continuous collection of data to identify the strengths and weaknesses of the strategies as they are implemented thus facilitating timely and evidenced-based changes, as necessary. The conduct of research is also needed to better understand the COVID-19 vaccine myths and conceptions among various sub-populations in order to better customize the targeted intervention strategies. The M&E framework will also determine overall success as well as the impact of the various strategies and in specific sub-populations.

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9. Appendices

Appendix 1: Definitions of Key Concepts and Constructs

Myths and Misconceptions

Identifying myths and misconceptions is crucial in mitigating the COVID-19 outbreak and strengthening preventative and containment measures. It is important therefore to understand how these constructs are being conceptualised. The following are definitions for the constructs: myths and misconceptions, which have collectively affected vaccine uptake globally.

Myths are traditional stories that embody a belief regarding some facts or phenomenon of an experience³⁷. A myth is a traditional or legendary narrative or folklore usually of unknown origin that may be associated with cultural or religious beliefs that is widely held and plays a fundamental role in society. Myths are therefore intertwined with culture, religious beliefs/traditions/customs/rituals, which become entrenched into the mindset and are difficult to dispel³⁷.

A misconception can be conceived of as a misinterpretation that results from a lack of scientific or other credible evidence. Misconceptions can be related to the impact that the use of widely available technology has on people's beliefs about the vaccine^{38,39}.

Vaccine Hesitancy

Vaccine hesitancy refers to delay in acceptance or refusal to take vaccines despite the availability of a vaccine programme⁴⁰. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency (persons do not perceive a need for a vaccine), convenience (it is difficult to access vaccines) and confidence (persons do not trust vaccine or health care provider). Vaccine hesitant persons are a diverse group with various degrees of indecision about specific vaccines or vaccination in general. Vaccine hesitancy occurs on the continuum between high vaccine demand, lower vaccine demand (accept some vaccines) and complete vaccine refusal.

Herd immunity

Herd immunity, also known as 'population immunity', is the indirect protection from an infectious disease that happens when a substantial proportion of the population is immune either through vaccination or immunity developed through previous infection thus making the spread of disease from person to person unlikely. As a result, the whole population is protected, not just those who are immune. WHO supports achieving 'herd immunity' through vaccination, not by allowing a disease to spread through any segment of the population, as this would result in unnecessary cases and deaths. The proportion of the population that must be vaccinated against COVID-19 to begin inducing herd immunity is not known but it is estimated to be about 70-80% of the population.

Appendix 2: Examples of Best Practices for Successful Vaccine Campaigns^{41–44}

ISRAEL

The Ministry of Health, Israel developed a proposal titled the “Green Pass” which is a model of incentives developed to compensate for the months of social restrictions imposed on its population and to encourage vaccine acceptance and uptake.

The aim of the “Green Pass” is to encourage individuals who are at lower risk to severe COVID-19 infection, to get vaccinated, as well as to achieve an immunization rate of 95%. Incentives included access to cultural, social, sporting events such as the use of gyms, restaurants, and hotels for individuals with immunity; exemption from quarantine for persons who were in contact with a confirmed COVID-19 case or individuals’ who travelled recently; and entry allowance to specific establishments to individuals who were vaccinated and denial to individuals who were not vaccinated.

Other Factors that are contributing to success of vaccination efforts:

1. Relatively small sample size, in terms of geographical location and population.
2. Young population (approximately 12% of the population is over age 65 years).
3. Centralized national system of government (compared to a federal government system).
4. Extensive experience in infrastructure, planning, and implementation of prompt responses to large-scale emergencies.
5. Organisational, information technology and logistics capacities of the community health care providers are large and consists of a national scope.
6. Availability of well-trained community-based nurses who can assist with vaccination rollout.
7. Effective cooperation between the health system and institutional organisations such as government, health plans and emergency care providers during national emergencies.
8. Rapid mobilization of special government funding for vaccine purchase and distribution as well as the timely acquisition of vaccines for the Israeli population.
9. Outreach effort specifically designed for the Israeli population to encourage individuals to register for vaccination.
10. Simple and clear criteria for dissemination to the population to determine priority candidates to receive vaccination.

SERBIA

As of 11th March 2021, Serbia vaccinated more than 13% (n = > 1 million) of the country's population.

Factors contributing to success of vaccination efforts:

1. Vaccinations sites located at health care facilities as well as event venues in major cities.
2. Mobile units used to administer vaccines to the elderly population and persons with disabilities.
3. An electronic system was developed to track and record data on the vaccination process such as willingness to be vaccinated.
4. Issuance of vaccination certificates.
5. An information telephone line was implemented to ensure patients have access to accurate and relevant information and guidance related to COVID-19 if persons unable to access the internet.
6. Officials in Serbia recognized that using targeted communication contributes significantly to build trust and achieve a high vaccine uptake.
7. Supported by the World Health Organisation (WHO), Serbia collected data on public perception and attitudes towards COVID-19 vaccines and vaccination using a behavioural insights survey. Two surveys were conducted in December 2020 and February 2021, the data collected were used to develop targeted COVID-19 vaccination communications strategy and action plan to tackle the individual's needs and concerns.

CHILE

As of 3rd March 2021, 19 million persons had received one dose of the COVID-19 vaccine with over 61,000 persons receiving two doses of the COVID-19 vaccine in Chile.

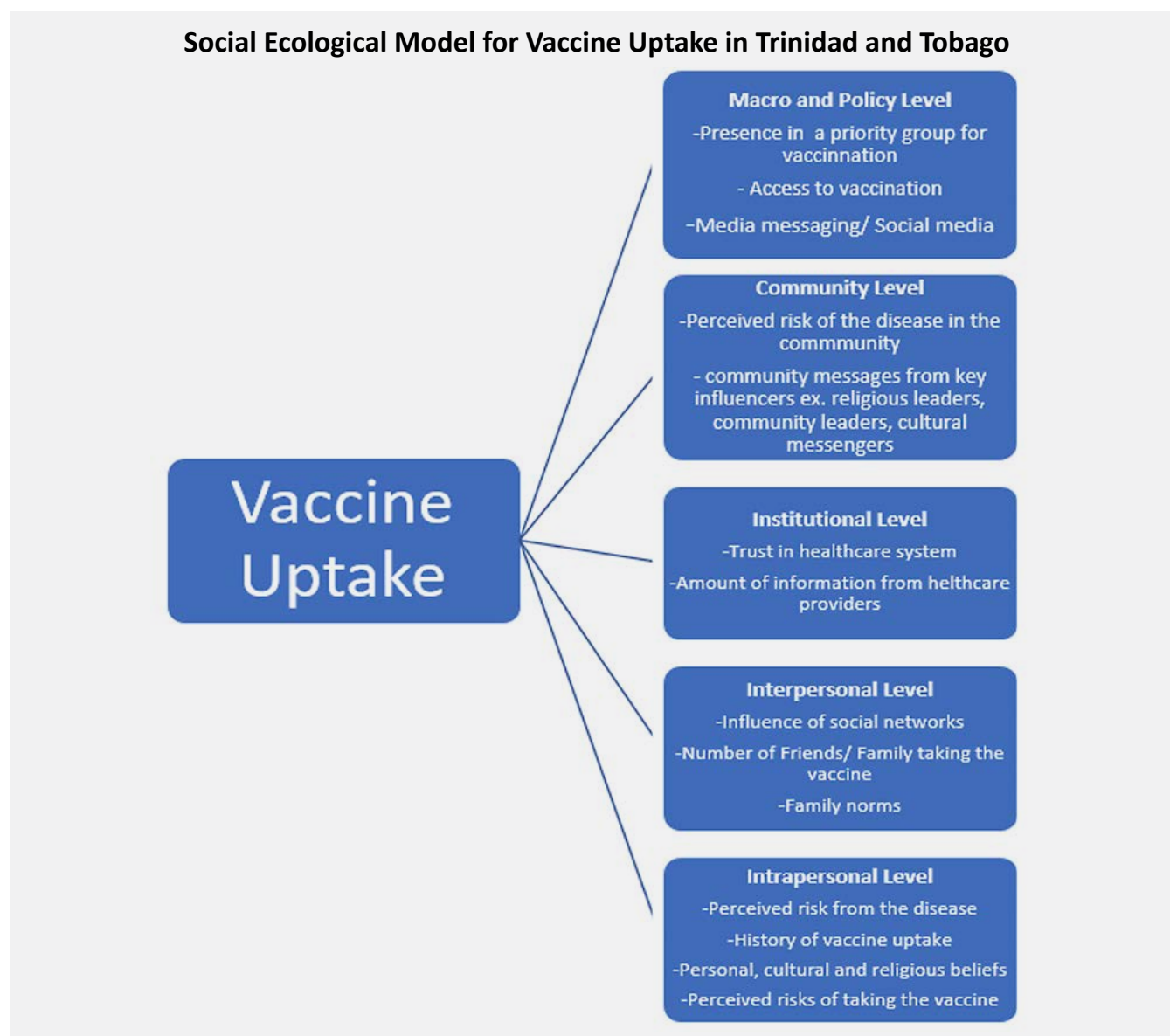
Factors contributing to success of vaccination efforts:

1. Use of sports stadiums, clinics, gyms, and schools as vaccination centres,
2. The country's financial status
3. Well-established immunization campaigns implemented in the 1950s.
4. Well-structured primary health care system.
5. Proactive acquisition of vaccines from pharmaceutical institutions by the government of Chile.
6. Numerous networks and trade agreements with sixty-five (65) countries and participation in funds and clinical trials contributed to the rapid acquisition of COVID-19 vaccines.
7. Low levels of vaccine scepticism and high levels of community engagement and acceptance, with less than twenty (20) percent of the population rejecting immunization.

Appendix 3: Theoretical Frameworks

The Theoretical Frameworks that guided the preparation of the Vaccine Uptake strategies included the Social Ecological as well as Behavioural Change Models. The latter included the Fogg Behaviour Model, Health Belief Model and Theory of Planned Behaviour.

The Social Ecological Model (SEM) posits that individual decisions and behaviours about vaccine uptake are influenced by factors at the micro, mezzo and macro levels. These factors include intrapersonal and interpersonal as well as institutional, community, and policy level influences. Research in Trinidad and Tobago has shown determinants of COVID-19 vaccine include past vaccine acceptance and beliefs about vaccine safety⁴⁵. The latter factor, itself can be determined by the impact of the media and other influences. Other research has also shown that vaccine uptake is also influenced by religious, social and cultural influencers. To increase vaccine uptake, it is necessary to adopt a Social Ecological model that will shape a multi-level approach towards influencing and increasing vaccine uptake.



Behavioural Change Models

Increasing vaccination uptake in a population requires an understanding that this involves changing health behaviours⁴⁶. While understanding the myths and perceptions of vaccinations is extremely important in addressing health behaviours, there are many other elements that influence behaviours such as internal factors, attitudes, beliefs, motivation, ability, perceived threat, family and cultural norms, and policy regarding access. There is wide-spread agreement among researchers that information and education alone will not translate into behaviour change. While education on vaccines is an integral component of the process, a behavioural change model is also necessary to shape the strategies to increase vaccine uptake. In this regard, the following health behaviour change models were also utilized in shaping the COVID-19 vaccine uptake strategies for Trinidad and Tobago:

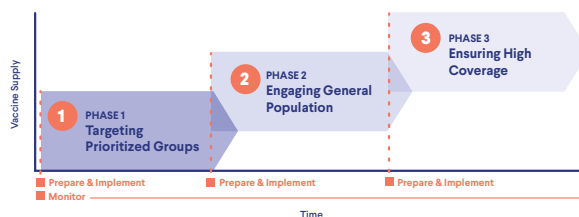
- 1. Fogg Behaviour Model (FBM):** The FBM was designed to inform persuasive technology⁴⁷. Persuasive technology aims to change attitudes and behaviour using computer technology such as applications and websites.
- 2. Health Belief Model (HBM):** The assumption of the HBM is that perceptions about risk of the health concern and perceptions about the benefits of and barriers to vaccination will influence the likelihood of an individual taking a vaccine⁴⁸. This model also suggests that common perceptions formed by environmental factors such as religious influences, social media, peers, family, and community also need to be addressed to increase vaccine uptake.
- 3. Theory of Planned Behaviour (TPB):** The TPB basic assumption is that behaviour is the product of three main constructs – attitude, subjective norms, and perceived behavioural control⁴⁸. TPB supposes that an individual with a positive perception about a health behaviour (such as vaccination) is more likely to engage in that behaviour. The second construct of the TPB relates to subjective norms. The subjective norms construct is associated with the perception of the individual that vaccination will result in sociocultural acceptance. Thus, the individual who believes that vaccination would result in being accepted and popular (especially among their peers) is more likely to engage in the behaviour. Finally, an individual's behaviour is impacted by their perceived self-efficacy and level of control. Thus, their assessment of their perception of the level of difficulty and their access and confidence in being able to sustain the behaviour, is important.

Appendix 4: Quick Guide for Vaccine Communications

COVID-19



Quick Guide for Vaccine Communications



Prepare

- ☒ Establish vaccine communications working group
- ☒ Designate roles and responsibilities
- ☒ Nominate spokespeople
- ☒ Identify and secure resources to implement communications plan
- ☒ Develop decision tool to determine response to vaccine-related event
- ☒ Define target audience: Allocated groups recommended for vaccination
- ☒ Identify potential threats to confidence in vaccine safety

Implement

Activities targeting health workers

- ☒ Identify and respond to specific vaccine confidence needs of health workers
- ☒ Prepare specific key messages, materials and trainings for health workers

Activities targeting influencers

- ☒ Identify key influencers and ambassadors
- ☒ Seek input from key stakeholders representing marginalized communities
- ☒ Choose most effective and equitable communication channels

Activities targeting the public

- ☒ Create key messages and communications materials and pre-test as needed
- ☒ Create clear procedures for approval and dissemination of information
- ☒ Implement routine information dissemination
- ☒ Engage with media and build social media presence
- ☒ Create mechanisms for responding to questions

Monitor

- ☒ Review new information and continually update materials as additional vaccines and recommendations are introduced
- ☒ Develop strategies to monitor and evaluate communications
- ☒ Monitor for safety events
- ☒ Monitor reactions from media and public

For more information on preparing a COVID-19 vaccine communication strategy, visit us [here](#).

Prevent Epidemics is a project of Resolve to Save Lives, an initiative of Vital Strategies.

Source: [Prevent Epidemics.org](https://www.preventepidemics.org/)³⁶